

Example #1: Two solenoids are placed side-by-side. The first is connected to a power supply and a switch; the second is connected in a separate circuit to a galvanometer, which detects current movement. Can the first solenoid induce a current in the second one? Explain your answer.

Yes; by turning on/off the power supply continuously (using the switch), you are turning the magnetic field in the first solenoid on/off. This means the magnetic field is changing, and will \therefore induce a current in the coils of the second solenoid.